SWOT data for water management : Coupling hydrological and hydrogeological processes at the Paris basin scale

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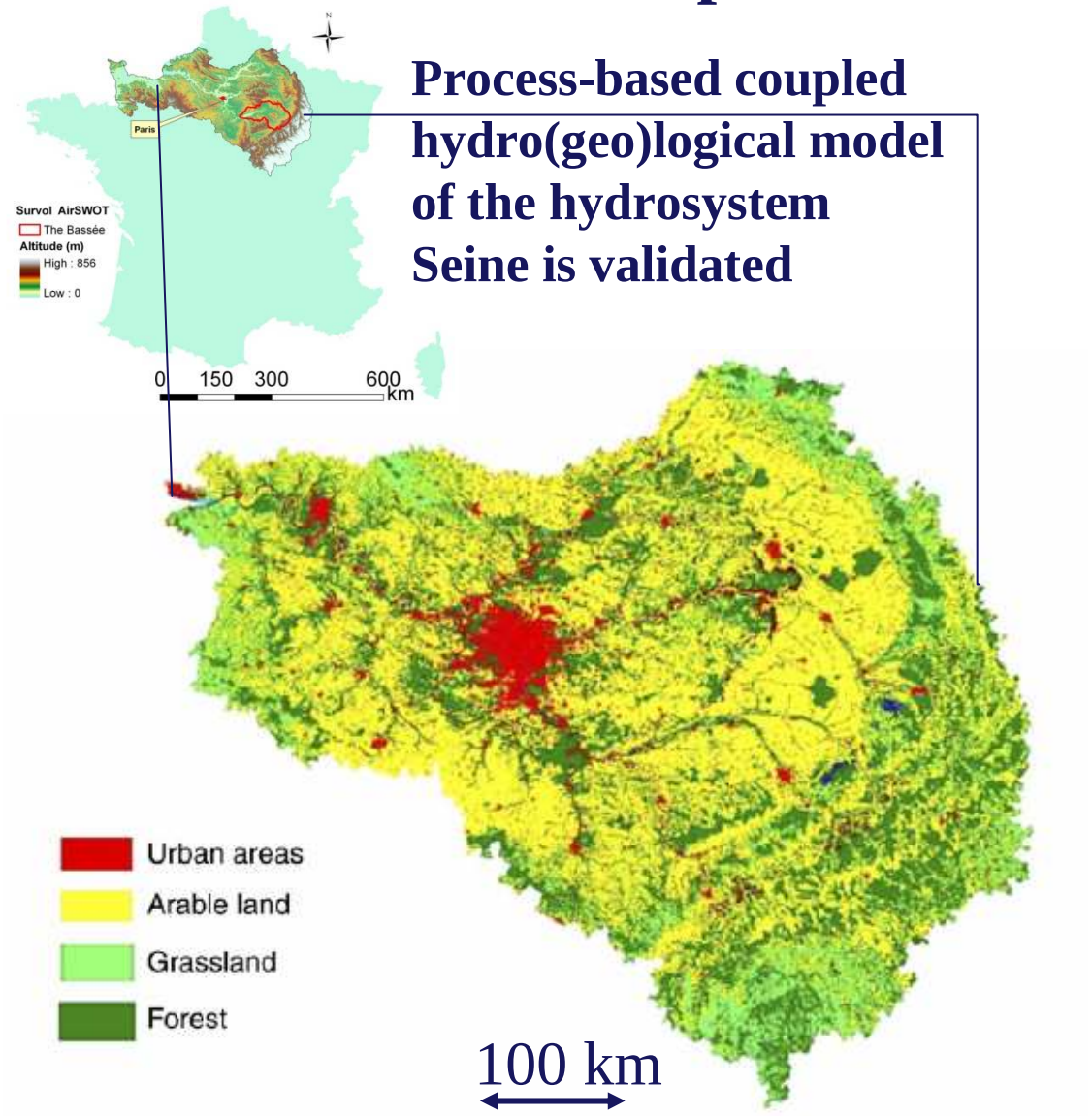
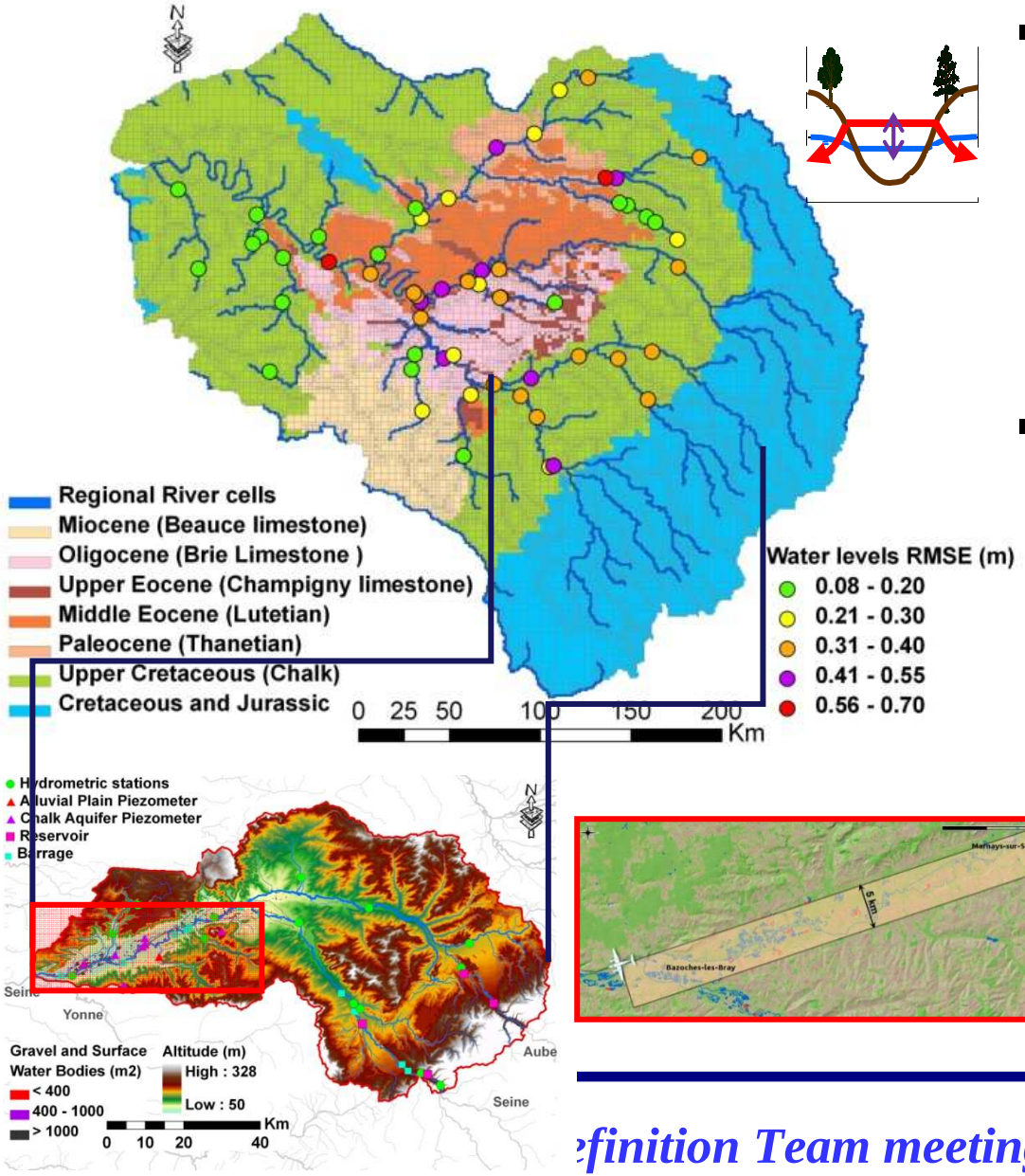
Alluvial plains of the Paris basin



Process-based coupled hydro(geo)logical model of the hydrosystem Seine is validated

- Sedimentary basin (65 000 km2, 17 Minh) with the greater Paris in the center (10 Minh)
- Alluvial plains = geological units where population settles
- Alluvial plain = stream aquifer interface at the regional scale
  - ✓ Risk of flood
  - ✓ Drinking water withdrawals
  - ✓ High potential for biogeochemical reactions
- Studied for >20yr by the PIREN Seine

Expectations from SWOT



- Provide spatio-temporally distributed in-stream water levels for a better simulation of the continental hydrological cycle, within the framework of coupled hydro(geo)logical models
- Provide datasets to better understand the multiscale functioning of stream-aquifer interface from the hyporheic zone to the alluvial plain (local to regional scale)

State of the art tool for validating river discharge modelling at the regional scale

Link with key Phase-A SWOT issues

This project has a potential to address the following key Phase-A issue:

(1+2) How geomorphological data accuracy (width of the channel + river bed slope) impact the discharge estimates at the regional scale within diverse modelling framework (Muskingum+1D Saint-Venant)

(1+2) How to take into account hydraulic works within the modelling framework

(3) What is the relevent frequency of hydro(geo)logical processes (in-stream, stream-aquifer interactions, ground water resources)

(5) What kind of data are needed by the hydrology community? + what usage to do with it?

(6) How will discharge and storage (in-stream + in alluvial plain) change be characterized and/or validated?